

**Maine Department of Marine Resources
Public Health Division
July 8, 2010**

DMR Response to Industry Proposed Flood Closure Transition Plan dated May 7, 2010

Purpose of the DMR Flood SOP

One of the major principles of the National Shellfish Sanitation Program (NSSP) is its proactive approach. For the protection of public health, it is preventative not reactive. This applies to all aspects of shellfish harvesting, handling and transporting including growing area classifications and emergency conditions. All decisions are made to ensure that polluted shellfish are not harvested and sent to market.

From MO:

@. 03 Growing Area Classification.

A. General. Each growing area shall be correctly classified as approved, conditionally approved, restricted, conditionally restricted, or prohibited, as provided by this Ordinance.

- (1) **Emergency Conditions. A growing area shall be placed in the closed status under §.03A(5) when pollution conditions exist which were not included in the database used to classify the area.** If it is determined that an emergency condition or situation exists, then the growing area will be immediately (within 24 hours) placed in the closed status.

In considering the effect of precipitation on fecal scores, DMR staff members take into account the Department's current flood closure protocol. In assessing past water quality results, DMR staff take into account that results from samples collected after rainfall events of greater than 2 inches within a 24 hour period (current flood closure trigger) would be considered "Flood Closure" samples, and thus in closed status. Thus, in considering initial classifications and upward classification changes for areas, DMR staff members are able to exclude any datapoints that would fall into the closed status under the current flood closure protocol. Therefore, any recent classification upgrades were completed under the assumption that all areas along the coast will close after two inches of rainfall. If the rainfall closure trigger is augmented to 3 or 4 inches, the current classification of certain areas may no longer be appropriate, and such areas will need to be downgraded in classification to protect public health.

Wide Scale Approach

The submitted plan incorporates a wide scale approach – large areas - and acknowledges that a wide scale approach is needed. – *“For regional flood impact zoning to work in a practical manner, it is paramount that broad regions or zones are identified. While sanitary surveys are growing area specific, flooding events are regional. Thus issues of enforcement, closure notifications, and practicality necessitate a regional approach to emergency flood closure policy. Patch working for local interest groups will so complicate this approach as to make it unfeasible.”* (pg5). However, the proposed regional approach submitted seems to be concentrated on population density and presence of larger river systems. The coast of Maine is

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approximately 5347 linear miles. There are over 5000 rivers and streams covering more than 31,000 miles (see Figure 1). The entire Maine coast is covered with rivers and streams, many that feed directly into shellfish rich coves and bays. The most productive soft shell clam and mussel beds are in estuaries fed by the rivers and the streams – the areas that are most at risk during runoff pollution events. An inspection of prohibited and restricted areas up and down the coast attest to the fact that it is not just high population density areas or larger river systems that are impacted by pollution.

Figure 1 Example of one area in Maine showing the extent of rivers and creeks flowing through Maine and providing conduits for runoff.



The submitted proposal recognizes that there are many areas classified approved that would not retain that classification if we did not close harvesting after two inches of rain. Those areas have been designated High Flood Impact. Other areas have been designated as Medium or Low Flood Impact that would not close until higher thresholds of rain have been reached. In terms of this regional proposal and our growing area classification system what growing areas would you lose from the current approved classification? (Please refer to maps for discussion of this point)

How flood stations were selected?

There are approximately 100 water quality monitoring stations situated along the Maine coastline that serve as Flood Closure Re-opening stations. Flood stations (stations known to be impacted negatively by rainfall) are spread across the State. These stations, classified as Approved and

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Conditionally Approved (when in open status) are used as indicator stations to determine when each growing area may be re-opened after an emergency flood closure is implemented.

The specific stations which serve as reopening samples following flood events were carefully selected by DMR staff. While being classified as approved (or conditionally approved), past water quality data indicates that these stations are intermittently impacted by rainfall of greater than 0.5 inches within 24 to 48 hours of sample collection. Thus, this subset of stations represents stations which are most likely to show elevated fecal scores during and following precipitation events, and are thus the most conservative stations for gauging the time it takes water quality to return to the approved standard. When water quality at these conservative stations returns to the background levels following an emergency flood condition, DMR staff have a reasonable expectation that water quality in the remainder of the growing area has returned to background levels as well.

Automatic/Timed Reopenings

There are two requirements that must be met in order to reopen an area placed in the closed status due to an emergency condition.

1. The condition causing the closure has subsided and returned to normal and
2. Sufficient time has elapsed for the shellfish to have cleansed themselves. Once water quality has returned to approved standards it takes shellfish a longer period of time to cleanse themselves.

The factors affecting the amount and quality of runoff during flood conditions are varied and many. Some of the factors include rainfall duration and intensity, how much of the State receives heavy rainfall, soil saturation, soil infiltration rates, topography, slope and land development, to name a few. Additional rainfall following flood closure amounts often exacerbates runoff and water pollution problems. DMR data indicates that every flood closure presents its own set of conditions which are variable and unpredictable. There is no model that can accurately evaluate all the factors and determine the impact to water quality. The only way to know if water quality has returned to normal is to collect samples and test them.

We can look at historical data to determine closure periods. Automatic or timed reopenings would pose problems and would not eliminate flood closure sampling.

If a case could be made for automatic reopenings, flood sampling of rainfall impacted stations would have to be done in order to verify that these areas were meeting the protocol just as we do SRS to monitor classifications. Automatic reopenings without flood sampling would have to reflect the worse case scenario in order to cover all conditions; very likely an automatic reopening would be a great deal more than the seven days – a time frame that is possible with the current flood SOP. Furthermore, additional rainfall following flood closure often aggravate runoff and associated pollution. This situation would negate timed reopenings since there would be no way to determine ahead of time that conditions will have returned to normal.

Broken SRS database

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DMR collects and analyzes between 11,000 to 12,000 seawater samples per year. These are samples collected under all strategies and conditions. When looking at 5 to 6 years worth of data we are evaluating 50,000 to 60,000 data points. By far the majority of our data has been and is collected following an SRS approach. We are in compliance with SRS requirement. SRS was developed as a way for states to monitor classifications. For classification purposes it may not provide the data needed to evaluate areas under all conditions. With the current protocol for upward classification of growing areas, conditions impacting water quality are identified and targeted for sampling under those conditions; this includes rainfall. After years of sampling we know what areas are most impacted by rain and we have increased our efforts to collect more adverse samples especially after rainfall so that we can make better classification decisions. This strategy will provide us with more useful information than just SRS.

The entire shellfish classification program is labor intensive requiring many field, lab and report writing hours. We have developed a growing area classification SOP and flood SOP to maximize the areas classified as approved. Due to the many variables impacting and causing runoff and in order to reopen areas at the earliest time frame after a flood closure it requires extensive sampling to verify that conditions have returned to normal.

Discretion:

The discussion of discretion has been proposed. Some areas where discretion may improve the current Flood SOP are listed below. More work is needed to develop a plan with guidelines that incorporates more discretion. Presently we are in the time of year with the highest pollution levels. During the summer through mid fall we see the highest fecal scores from all areas, approved, restricted and prohibited. This is the time of year when the most conservative flood SOP is needed in order to preserve the current classifications and protect public health. We will work on refining the Flood SOP and hopefully, by late fall we will have an updated SOP that provides more opportunity for discretionary decisions.

Potential for Discretion:

- Hard and Fast 2 inches – are there times when 2.5 or 3 inches is protective/
- Sampling regime – immediately following or waiting a longer time period.
- Criteria for reopening – number of consecutive acceptable samples?
- Multiple days of rain – each under 2 inches but causing extremely runoff especially during summer and fall?